51079/RRP/R79 -

REPLACEABLE-BLADE KNIFE

CROSS-REFERENCE TO RELATED APPLICATION

This application claims the benefit of U.S. Provisional Application 60/410525,filed September 13, 2002.

BACKGROUND OF THE INVENTION

Replaceable-blade knives such as utility knives using trapezoidal blades, and carpet knives using rectangular blades, enable use of a comfortable and contoured gripping handle with replaceable blades appropriate to the material to be cut. Storage of replacement blades in a drop-down compartment positioned within the gripping handle is disclosed in U.S. Patents 3,577,637, 3,593,417, and 3,927,473. These prior-art arrangements, however, are somewhat inconvenient to use, as multiple steps are required to release a dull blade for replacement, and to release the holder for access to a new blade.

The invention herein disclosed is directed to a knife of this general type, and in which a drop-down blade holder is unlatched and released by movement of a blade clamp to a position enabling removal of a dull blade, and immediate installation of a replacement blade.

SUMMARY OF THE INVENTION

A replaceable-blade knife having a handle housing a spare-blade holder which is movable between open and closed positions. An active-blade clamping bar is movably mounted on the handle to be movable between a closed position in which a blade projecting from the handle is rigidly secured to the handle, and an open position enabling access to the blade. A

locking means operative between the clamping bar and spare-blade holder locks the holder in its closed position when the clamping bar is in its closed position, and releases the holder for movement to its open position when the bar is in its open position.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a top view of a knife according to the invention in a closed position with a blade (shown in phantom line) clamped in a cutting position;

Fig. 2 is a top view showing the knife in an open position which releases the active blade, and provides access to a spare-blade holder;

Fig. 3 is an exploded perspective view of the components of the knife;

Fig. 4 is a side view taken from beneath Fig. 1;

Fig. 5 is an opposite side view taken from above Fig. 1;

Fig. 6 is a sectional view on line 6-6 of Fig. 1; and

Fig. 7 is a sectional view on line 7-7 of Fig. 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

A replaceable-blade knife assembly 10 according to the invention is shown in Figs. 1-7. The assembly includes a lower body portion 11 which extends for the assembly full length, and a shorter upper body portion 12 with a concave front surface 13. The body portions have recesses 14 and 15 to receive a spare-blade holder 17 which is pivotally mounted on a pin 18 rigidly secured to portion 11, and extending through a clearance bore 19 in the rear end of the holder. The body portions are secured together by fasteners such as a pair of spaced-apart screws 21 seated in recessed openings 22 in the upper body portion, and secured in threaded openings 23 in the lower body portion. The thus-assembled rounded-edge

body portions form a handle for gripping by the hand of the knife user.

A blade-clamping bar 26 is pivotally mounted on lower body portion 11 by a clamping screw 27 having an enlarged slotted head 28, and a pivoted D-ring handle 29 (Fig. 3). A threaded shank 30 of screw 27 passes through a clearance opening 31 in bar 26 into engagement with a threaded opening 32 in the lower body portion. An undersurface of bar 26 has a recess 34 around clearance opening 31 in which is fitted an elastomeric O-ring 35 (Fig. 7). An upper surface 38 of bar 26 has recess 39 to receive the screw head and folded D-ring handle when the screw is tightened. An upper rear end of bar 26 has raised portions 40 separated by a downwardly concave notched surface 41 for engagement with the user's finger.

Extending rearwardly and downwardly from one side of a convex rear surface 44 of bar 26 is a clamping lug 45 which fits into and against a recessed seat 46 at a forward end of space-blade holder 17. When the knife assembly is in a closed position as shown in Fig. 1, lug 45 rests against seat 46 to form a locking means for securing holder 17 in a closed position supporting one or more spare blades 48 (shown in phantom line in the drawing) seated in a protective recess 49 in the holder.

Lug 45 and seat 46 comprise a presently preferred form of a locking means operative between the spare-blade holder and blade-clamping bar. The lug and seat can be reversed (lug on holder, and seat on bar), though this arrangement would force the holder open whenever the bar is rotated to the open position.

Another blade 48 in an active cutting position (Fig. 1) is positioned against a flat and recessed front surface 52 of lower body portion 11. Surface 52 has an upstanding rib 53 which is received in a conventional central slot 54 in the

blade. With bar 26 in a closed position against an upstanding wall 55 along one side of surface 52, and above the outwardly projecting active blade (Fig. 1), screw 27 is tightened to clamp the active blade tightly between surface 52 and the undersurface of bar 26, and to compress O-ring 31.

When the cutting edge of the active blade is dull, clamp screw 27 is unthreaded several turns, and expanding O-ring 31 forces the bar 26 upwardly so it can be rotated counterclockwise to an open position (Fig. 2) enabling the blade to be reversed or turned end-for-end to position a fresh cutting edge. Rotation of the bar is facilitated by thumb-engaging recess 39. When all cutting edges of the blade are dull, the blade is discarded, and spare-blade holder 17, now out of engagement with clamping lug 45, is dropped or shaken into an open position to give the user access to a spare blade for use in the active-blade position.